AMENDMENTS TO THE DRAWINGS

The attached three sheets of drawings includes changes to Figure 12, Figure 13A and Figure 14. These sheets replace the original sheets also including Figure 12, Figure 13A and Figure 14, respectively. In Figure 12, the reference 'Process 1200' was added. In Figure 13A, connector C was changed to indicate the process continues through block 1308 rather than block 1310. In Figure 14, the first of two blocks labeled 1410 was changed to label 1404.

REMARKS

1.   In response to the Office Action mailed July 29, 2004, Applicant respectfully requests reconsideration. Claims 1-29 and 44-65 were last presented for examination in this application. In the Office Action claims 1-29 and 44-65 were rejected. By the foregoing Amendments, claim 9 has been amended and claim 50 has been canceled. No claims have been added. Thus, upon entry of this paper, claims 1-29 and 44-49 and 51-65 will remain pending in this application. Of these 50 claims, three (3) claims (claims 1, 25, and 44) are independent. Based on the above Amendments and following Remarks, Applicant respectfully requests that the outstanding objections and rejections be reconsidered, and that they be withdrawn.

Objections to the Drawings

2.   The Examiner has objected to drawing Figures 14 and 15 under 37 CFR § 1.84(p)(5) for missing reference number "1412", and reference number "1504", respectively, which are mentioned in the specification. The specification has been amended to include these reference numbers. See the foregoing amendment to the specification in the paragraph at page 61, line 5 to line 11, and the paragraph at page 61, line 18 to line 23. Withdrawal of this objection is, therefore, respectfully requested.

3.   The Examiner notes in paragraph 2 of the Office Action that the drawings fail to comply with 37 CFR § 1.84(p)(5) because the reference signs "1300" and "1200" are mentioned in the specification but are not shown in the drawings. The specification has been amended to remove the reference to reference numeral 1300. See the foregoing amendment to the specification in the paragraph at page 59, line 4 to line 10. Also, the enclosed replacement drawings include a replacement Figure 12 which includes the addition of 'Process 1200'. Withdrawal of this objection is, therefore, respectfully requested.

4.   The Examiner notes in paragraph 3 of the Office Action that Figure 14 contains two steps labeled "1410". The replacement drawings sheets attached hereto include a replacement drawing sheet which includes Figure 14 corrected as recommended by the Examiner. Withdrawal of this objection is, therefore, respectfully requested.

Objections to the Specification

5.   The Examiner objected to the specification due to several informalities. Applicant has amended the specification to correct these and other informalities, including making the specification consistent with the above-noted proposed drawing changes. An explanation of the action(s) taken for each objection follows. Entry is respectfully requested. Applicant respectfully requests that the objections to the specification be withdrawn.

6.   One page 57, line 20, "display pulse 324" has been changed to "display pulse number 324" to more clearly show that a pulse number is being referenced.

7.   On page 58, line 18, "delay control 440" has been changed to "delay control 540", and "time value 432" has been changed to "time value 532" as recommended by the Examiner.

8.   On page 59, line 12, "pulse data array 208" has been changed to "pulse data array 206" as recommended by the Examiner.

9.   On page 60, line 14, the specification shows that processing follows connector C to block "1308" while replacement Figure 13A attached hereto shows connector C sending processing to block "1310."

10.   On page 62, line 15, "processing advances to block 1518" has been changed to "processing advances to block 1516" as recommended by the Examiner.

Claim Objections

11.   Claim 9 has been objected to due to a formality. The claim has been amended in accordance with the Examiner's suggestions, thereby accommodating the objections and rejections.

Claim Rejections Under 35 USC § 112, second paragraph

12.   Claim 50 has been objected to and rejected under 35 USC § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 50 has been canceled thereby rendering this rejection moot.

Claim Rejections Under 35 USC § 102(b)

13.   The Examiner has maintained his rejection of claims 1-3, 9, 11, 22, 24, 25, and 44 under 35 USC §102(b) as being anticipated by U.S. Patent No. 5,222,028 to LaBarre *et al.* (hereinafter "LaBarre"). The Examiner argues that LaBarre discloses a pulse analysis and management system that stores pulse characteristics and measurement statistics in a searchable database. Applicant respectfully traverses these rejections.

14.   Claim 1 recites:

> A signal measurement system comprising:
>
> > an acquisition memory; and
>
> > a pulse management system configured to automatically perform a series of pulse measurements on a time-varying analog signal comprising a plurality of pulses, samples of which are stored in the acquisition memory during a single acquisition of the time-varying analog signal, wherein the pulse management system generates and stores in a searchable data structure pulse characteristics comprising pulse measurement results of pulse measurements taken of each of the plurality of pulses, and **pulse measurement statistics comprising the results of statistical analyses of at least one of said pulse measurements**.
>
> (*See,* claim 1, above.)

Applicant respectfully submits that LaBarre neither discloses, teaches nor suggests Applicant's invention as recited in independent claim 1.

15.   LaBarre discloses a pulse analysis system that uses an oscilloscope to acquire a signal. (*See,* LaBarre, col. 6, lns. 54-58.) The system of LaBarre stores pulse characteristics, such as voltage, pulse width, etc., in acquisition memory. (*See,* LaBarre, col. 3, ln. 67 – col. 4, ln. 2 and Table 1.) As noted by the Examiner in the outstanding Office Action, the system of LaBarre also stores the DC Offset value of each pulse in the composite pulse. (*See,* LaBarre, col. 4, lns. 28 – 37 and Table 2.) Pulse samples are stored in a data array for either display or printing. (*See,* LaBarre, col. 8, lns. 46 – 49.) However, the DC Offset of the composite signal is a measurement of a single pulse. (*See,* LaBarre, col. 4, lns. 34-49 and Table 2.) The Examiner cites language that refers to a rolling average being measured as part of determining the DC offset. This, however, is nothing more than the measurements taken to determine the baseline value of the signal so that the appropriate change in the signal can be detected as a leading edge of the pulse. In other words, for a portion of a signal to be determined as a pulse, it must be "both tall enough and wide enough…" (*See,* LaBarre, col. 7,

ln. 61 to col. 8, ln. 4.) This and similar operations are performed by Applicant's, LaBarre's and other systems to detect the baseline of a signal, the top and base voltages of each pulse, etc. This is stated in Applicant's application: "To perform the various signal pulse measurements, a number of processes are performed by components of pulse database generator 202 to determine requisite signal or reference values that are considered in the determination of pulse measurement value[s]. For example, many signal pulse measurements reference the amplitude of the voltage pulse. The amplitude of the voltage pulse, therefore, in an intermediate value calculated by pulse database generator 202." (*See*, Applicant's application, pg. 24, lns. 1-6.) Such values, including the baseline voltage calculated by LaBarre, are used to determine, for example, which portions of the signal constitute a pulse, and then, once the pulses are identified, perform various measurements on the identified pulses.

16.   Thus, such intermediate values are used to generate the pulse measurements, whereas Applicant's claimed measurement statistics are "... of at least one of said pulse measurements ..." That is, such values of the sampled signal are used to determine pulses and pulse measurements, they are not operations performed on the resulting pulse measurements as claimed. Therefore, Applicant respectfully asserts that storing pulse measurement results and pulse measurement statistics for later use as recited in Applicant's claim 1 are nowhere disclosed, taught nor suggested in LaBarre. For at least these reasons, Applicant respectfully requests that the above rejections be reconsidered and withdrawn.

17.   Claim 25 recites:

> A signal measurement system comprising:
>
> an acquisition memory; and
>
> pulse management means for automatically performing a plurality of pulse measurements on a time-varying analog signal comprising a plurality of pulses, samples of which are stored in the acquisition memory during a single acquisition of the time-varying analog signal, and for generating for storage in a searchable data structure pulse characteristics of each of the plurality of pulses, wherein for each of the plurality of pulses, said pulse characteristics comprise results of pulse measurements taken of each of the plurality of pulses, and **pulse measurement statistics comprising the results of statistical analyses of at least one of said pulse measurements.**
>
> (See claim 25, above.)

18.   Applicant respectfully submits, for at least the reasons noted above, that the art of record neither discloses, teaches nor suggests Applicant's invention as recited in independent claim 25. Withdrawal of the rejection of claim 25 is, therefore, respectfully requested.

19.   Claim 44 recites:

> A method for generating a searchable pulse data structure for storage in a memory apparatus operationally coupled to a signal measurement system, said data structure comprising a plurality of signal pulse characteristics of pulses of time-varying analog signal samples of which are stored in an acquisition memory of the signal measurement system during a single acquisition of the time-varying analog signal, the method comprising the steps of:
>
> 1) automatically performing a plurality of pulse measurements the signal; and
>
> 2) generating for storage in a searchable data structure pulse characteristics of each of the plurality of pulses, wherein for each of the plurality of pulses, said pulse characteristics comprise results of pulse measurements taken of each of the plurality of pulses, and **global pulse measurement statistics comprising the results of statistical analyses of at least one of said pulse measurements**.
>
> (See claim 44, above.)

20.   Applicant respectfully submits, for at least the reasons noted above, that the art of record neither discloses, teaches nor suggests Applicant's invention as recited in independent claim 44. Withdrawal of the rejection of independent claim 44 is, therefore, respectfully requested.

Claim Rejections Under 35 USC § 103(a)

21.   The Examiner has rejected claims 1-6, 8-11, 14-17, 19-22, 24-28, 44, 49, 50, 52-57 and 59-65 under 35 USC §103(a) as being unpatentable over U.S. Patent No. 5,003,248 to Johnson (hereinafter "Johnson") in view of U.S. Patent No. 5,495,168 to de Vries (hereinafter "de Vries"). Claims 7, 23, 29, 45-48, 51 and 58 have also been rejected under 35 USC §103(a) as being unpatentable over Johnson in view of de Vries and further in view of U.S. Patent No. 3,656,060 to Bauernfeind et al. (hereinafter "Bauernfeind"). The Examiner has rejected claims 12 and 13 under 35 USC §103(a) as being unpatentable over Johnson in view of de Vries and further in view of U.S. Patent No. 4,721,958 to Jenkin (hereinafter "Jenkin"). Finally, the Examiner has also rejected claim 18 under 35 USC §103(a) as being unpatentable over Johnson in view of de Vries and further in view of U.S. Patent No. 5,410,617 to Kidd et

al. (hereinafter "Kidd"). The Examiner asserts that Johnson discloses a pulse management system that displays a histogram, and that de Vries discloses a method of using histograms to stabilize oscilloscope displays by using and storing pulse measurement statistics comprising the results of a statistical analysis. The Examiner further asserts that the combination of Johnson and de Vries would have been obvious and that such a combination would result in Applicant's claimed invention. Applicant respectfully traverses these rejections.

22.   Johnson teaches a means for simultaneously displaying a histogram and a signal on a display of an oscilloscope. (*See,* Johnson, col. 1, lns. 63-65.) The information stored in Johnson's acquisition memory comprises information required to display the signal, and to calculate and display the histogram. This includes pulse measurements such as pulse amplitude of a given waveform. (*See,* Johnson, col. 1, lns. 65-68.) De Vries teaches a means for improving the display of a histogram on a digital oscilloscope. (*See,* de Vries, col. 1, lns. 51-54.) Like Johnson, de Vries' memory comprises information required to display the signal, and to calculate and display the histogram. (*See,* de Vries, col. 3, lns. 35-40.) Also like Johnson, this includes information such as pulse amplitude of a given waveform. (*See,* de Vries, col. 3, lns 50-55.) In de Vries, the pulse amplitude values are either used automatically to adjust the display of the histogram, or displayed to the user to allow for manual adjustment. (*See,* de Vries, col. lns. 51-63.) Pulse amplitudes, as used in de Vries, are pulse measurements and are used immediately for improving the display of a histogram. (*See,* de Vries, col. 3 lns. 56-63.) De Vries does not teach or suggest using or storing pulse amplitudes for later analysis.

23.   Without addressing the propriety of whether there has been a sufficient showing that one of ordinary skill in the art would have been motivated to combine the teachings of Johnson and de Vries, Applicant respectfully asserts that any resulting combination of the references cannot contain Applicant's invention as recited in claim 1. Neither Johnson nor de Vries disclose, teach or suggest "... a pulse management system [that] generates and stores in a searchable data structure...pulse measurement statistics comprising the results of statistical analyses of at least one of said pulse measurements." Thus, even if the references were to be combined, the resulting system would not contain all the features of Applicant's invention without substantial modifications being made to the resulting system. For at least these reasons, Applicant respectfully requests that the above rejections be reconsidered and withdrawn.

24.   Applicants respectfully assert that all dependent claims are patentable for at least the same reasons as those noted above with regard to their respective independent claims.

Conclusion

25.   In view of the foregoing, this application should be in condition for allowance. A notice to this effect is respectfully requested.

Respectfully submitted,

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